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Specific Rain Attenuation Analysis and Modeling for 5G Communication (Conference Paper)

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Abstract

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Wireless communication are emerging rapidly in our daily life. For an example in mobile communication current trend we are moving from 4G communication towards 5G communication near the year 2020.Near future 5G communication will be operating at short wavelength, it is more to small cell communication. As we know rain impairment is one of the factor need to be consider by link designer especially in tropical region. In this paper, specific rain attenuation been discussed. An analysis and modelling of alpha and k value which are known as regression coefficient at 5.8 GHz been compared and presented for three different regression coefficient, alpha and k factor models. ITU-R, Ayayi and Din model are the most popular for specific rain attenuation predictions in tropical regions by researchers. At the end of the analysis, new regression coefficient factor for operating frequency at 5.8 GHz been establish by comparing all the three models for tropical region. It was found new value of regression coefficient, alpha =0.63, k=0,13 for operating microwave frequency at 5.8 GHz suits well for the tropical region. This study will be useful information for researchers, link operators and network designers for 5G network in future. © 2018 IEEE.

Author keywords

Frequency | Measured and Prediction Models | Rain Fall | Regression Coefficient | Specific Rain Attenuation

Indexed keywords

Engineering controlled terms: 4G mobile communication systems | Electromagnetic wave attenuation | Factor analysis | Frequency bands | Rain | Regression analysis | Tropical engineering | Tropics | Wireless telecommunication systems

Engineering uncontrolled terms: Analysis and modeling | Analysis and modelling | Frequency | Mobile communications | Prediction model | Regression coefficient | Specific rain attenuation | Wireless communications

Engineering main heading: 5G mobile communication systems

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